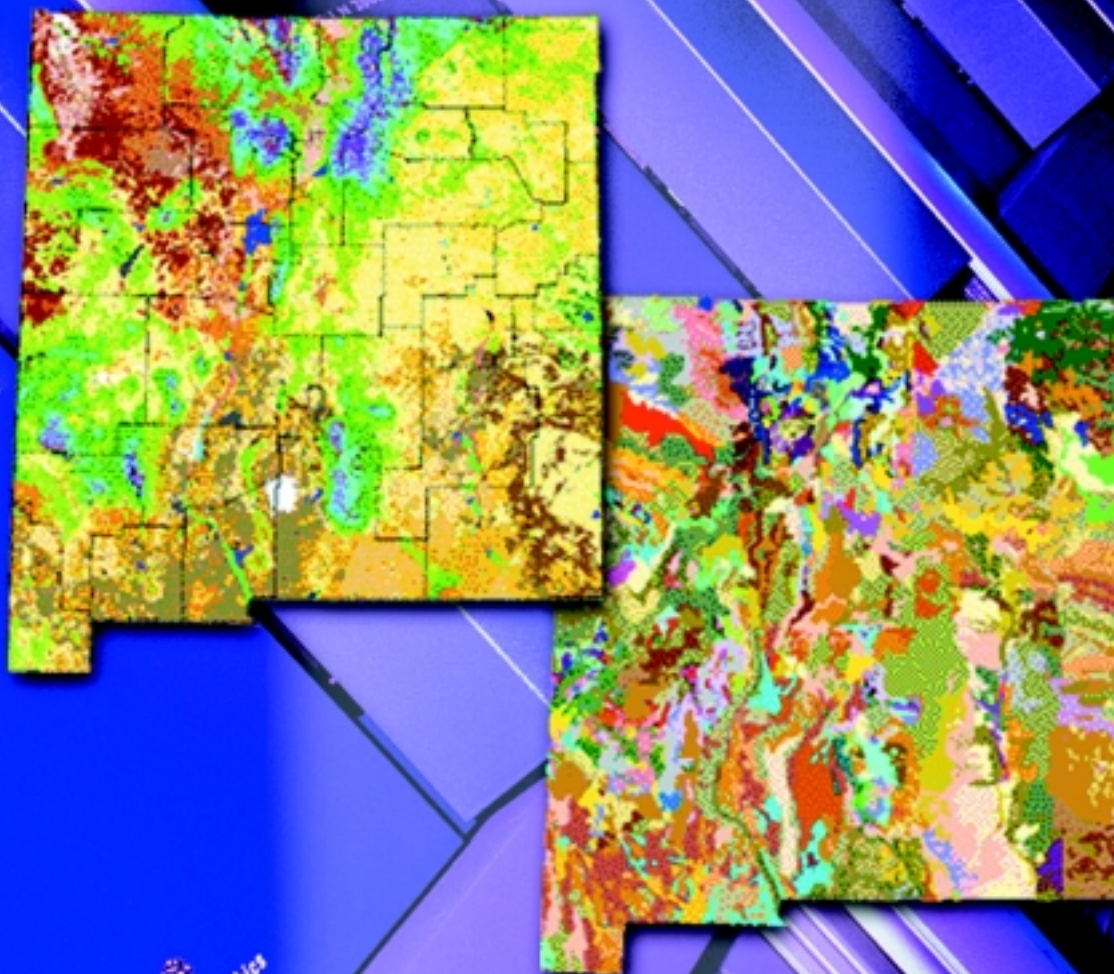


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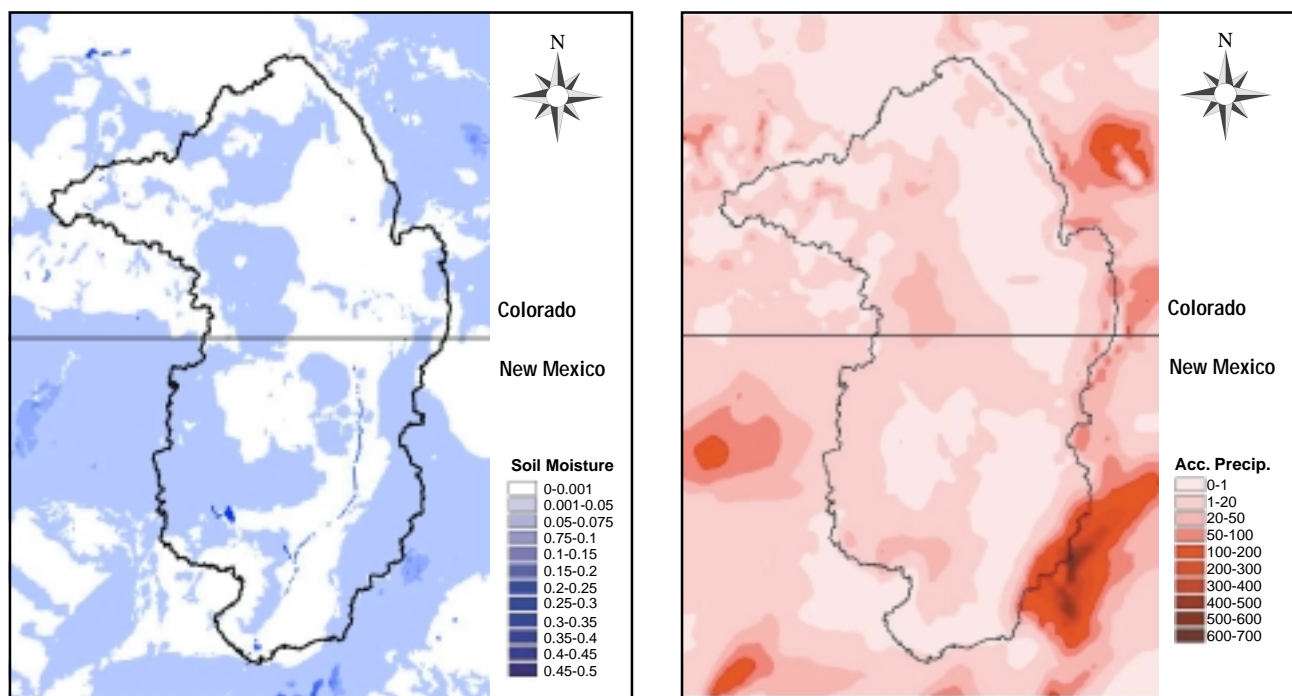
computing & communications news



Los Alamos
NATIONAL LABORATORY

April/May 2000

The Los Alamos Water Resources Modeling Project takes input data like vegetation (left) and soil (right) maps to calculate the water balance of the upper Rio Grande Basin. See inside for figures depicting these calculations.



The Los Alamos Water Resources Modeling Project Output

The Rio Grande Basin from Cochiti Reservoir to its headwaters in the San Juan Mountains is outlined on these figures. For more information about this project send e-mail to Everett Springer, everetts@lanl.gov, Environmental Science Group (EES-15), or Larry Winter, winter@lanl.gov, Computer Research & Applications Group (CIC-3).

About the front cover: The map on the left is the distribution of precipitation after 30 days and the map on the right is the soil moisture distribution after 30 days.

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Water Resources—Applying LANL's High-Performance Computing Capability to a National Problem

by Everett Springer, Larry Winter, and Jim Bossert, Los Alamos Water Resources Project

Los Alamos scientists are developing a computing environment that supports experiments and detailed simulations of the hydrology of large river basins like the Rio Grande or Colorado to support future decisions on the use of water resources. At this time funding comes from Laboratory Directed Research Development (LDRD)—a program authorized by Congress. In 1999 the Laboratory was a partner in a successful National Science Foundation (NSF) Science and Technology Center on the Sustainability of Water Resources in Semi-Arid Regions. The \$16 million, five-year project, led by the University of Arizona, draws on the expertise of Los Alamos scientists. The Laboratory's role in the Center is to lead the basin-scale modeling and simulation task. This includes using global climate data to make hydrologic assessments at the regional level where decisions are usually made.

High-Performance Computing and Water Resources

There is a pressing need to understand the complex interactions between the various physical domains that comprise the water cycle. To observe these processes in sufficient detail to obtain that level of understanding is impractical at best. This difficult measurement problem is caused by such phenomena

as the remarkable heterogeneity of moistening and drying of the soil layer at very small spatial scales. A more practical approach is to construct numerical models that incorporate the essential physics that govern these processes at very high resolutions, where we believe we understand their behavior, and then test the sensitivity of the process to a range of conditions. This approach can lead to a better understanding of the inherent nonlinear behavior of the process. From this understanding, we can develop algorithms to improve the representation of these processes in coarser resolution models of the entire hydrologic cycle.

To develop the simulation capability described above requires a consistent computational framework that permits both the testing of various algorithms that represent specific processes, and their coupling across the physical domains that describe the water cycle. This requirement demands that modularity and code standardization protocols be a primary component of the computational framework to promote intercomparison of particular algorithms. The framework must also allow for parallel computing in a loosely coupled manner, so that individual process models, that together can describe the water balance of a region, can be run simultaneously, yet independently, passing information as needed with other process models. Software to optimize the computation of these asynchronous process models is critical to ensure that the overall water

balance computation is run as efficiently as possible, given that the resolution and time of integration demanded for this problem can require the full capability of the Nirvana Blue supercomputer.

Coupled Environmental Modeling Project

The LDRD Directed Research project, called the LANL Coupled Environmental Modeling Project, is in its third year of funding. The project is a collaboration between researchers within the Laboratory's Computing, Information, and Communications, Earth and Environmental Sciences, and Theoretical Divisions. The objective of the project is to quantify the detailed water balance of a large river basin by performing high-resolution simulations using a coupled model of the regional atmosphere, land surface, and subsurface components. The coupled model consists of discrete physical domains (for instance, the atmosphere or land surfaces) that interact nonlinearly and operate at different time and space scales. Los Alamos researchers are concentrating on analyzing couplings that exchange water and energy by evapotranspiration from the land to the atmosphere and by the vertical exchange of water between surface and subsurface components. With an improved understanding of the water balance, Los Alamos scientists are striving to provide the scientific basis for the next generation of environmental management tools to aid decision-makers.

The coupled model is composed of three interacting components. (1) A regional atmospheric model that is driven by global climate data, a land-surface hydrology model, and a subsurface hydrology model. The regional atmospheric model [currently the Regional Atmospheric Modeling System (RAMS)] predicts the regional climate and provides meteorological variables, especially precipitation, to the land-surface model. (2) The land-surface model [currently the Simulator for Processes of Landscapes, Surface/ Subsurface Hydrology (SPLASH)] partitions precipitation into evaporation, transpiration, soil-water storage, surface runoff, and subsurface

recharge. (3) The subsurface hydrology model [currently, Finite Element Heat and Mass (FEHM)] is linked to the land-surface component to simulate saturated and unsaturated flow and changes in groundwater due to natural and anthropogenic effects. The system is presently run on the Nirvana Blue supercomputer at Los Alamos.

The upper Rio Grande Basin is the testbed for the model because it possesses characteristics of river basins in arid and semiarid environments. These characteristics include (1) a large percentage of the water generated over a small percentage of the basin, and (2) the conjunctive use

of surface water and groundwater for supply. Water resources are already stressed in the Rio Grande so any additional perturbation caused by climate change can have a significant impact. The model is currently being used to simulate the distribution of soil moisture at resolutions of 100 m² for the 1992–1993 water year (see Figs. 1 and 2). Such simulations can be used to support water allocation strategies by determining the sensitivity of soil moisture to the distribution of precipitation and land-surface properties in space and time, groundwater recharge, and the interaction between soil moisture and the formation of convective storms.

High Resolution Reveals Critical Details

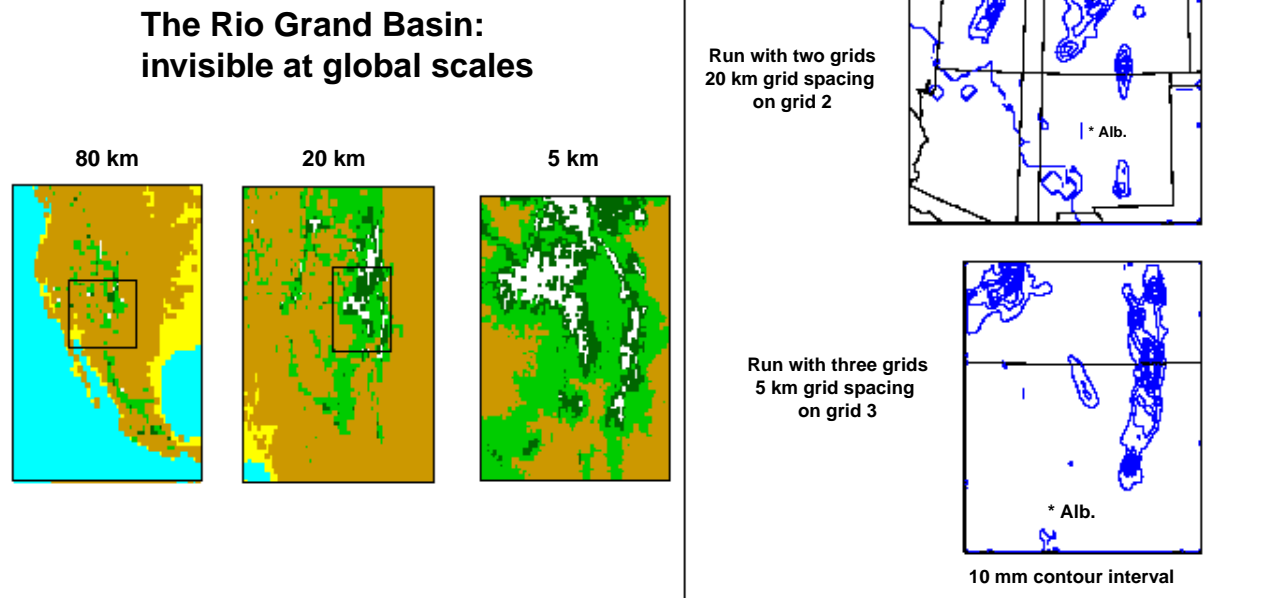


Fig. 1. This figure illustrates the differences between levels of detail provided by higher resolution simulations. High resolution is needed to capture climate variation, interfaces and feedback, heterogeneities, and uncertainty.

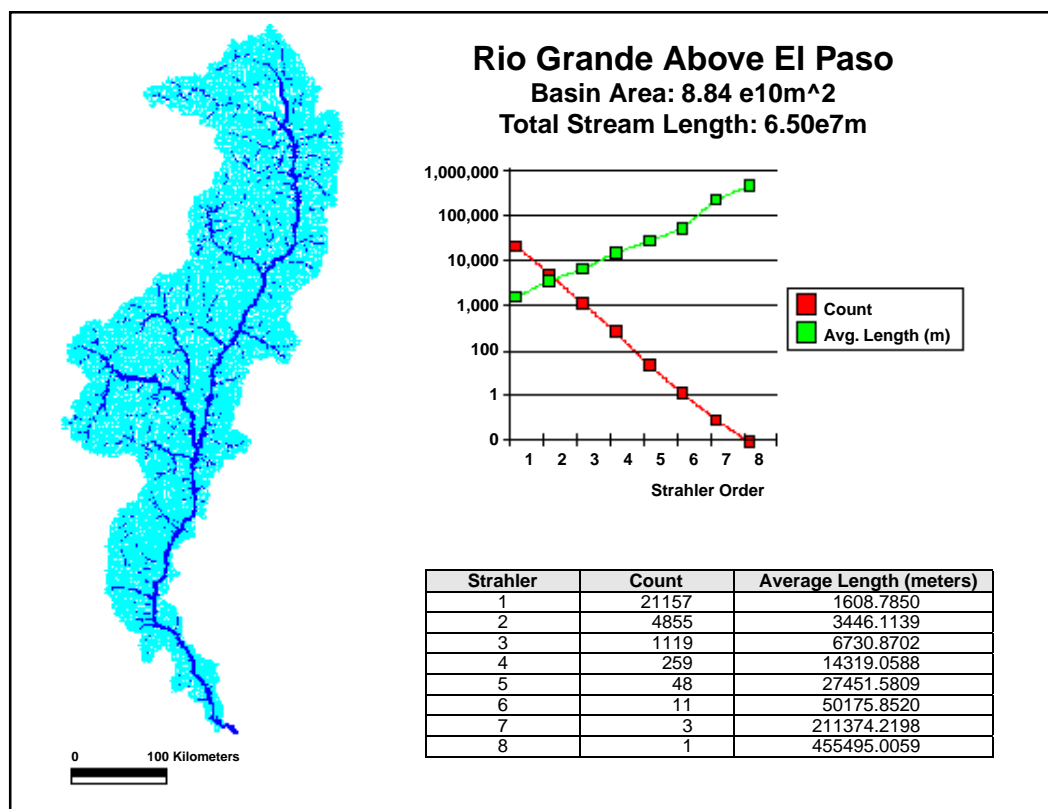


Fig. 2. The fractal dimensions are depicted by the slope of the descending (red) line.

NSF's Science and Technology Center

The Laboratory's role in NSF's Science and Technology Center is to develop parallel models and algorithms of river basins and to support the development of other models by Center partners, including archiving, visualization, and analysis. The principals of the project are the University of Arizona, New Mexico Institute of Mining and Technology, US Department of Agriculture, and Los Alamos. Partners include Lawrence Berkeley National Laboratory, Scripps Institution of Oceanography, University of California (UC) Los Angeles, and the University of New Mexico. This is a very significant opportunity for the Laboratory to demonstrate its skills in simulation and analysis in an unclassified arena that has enormous potential to affect the lives of New Mexicans and others.

Virtual Watershed

For the next few years the Laboratory's role will be to develop a computing environment to allow physical and social scientists to build model watersheds and verify that these models work. Using classical science, inputs into the system are, for example, land-use changes as a result of population changes. An example of outputs of the system is water availability for agriculture or water storage.

One goal of the Los Alamos Water Resources Project is to develop the Virtual Watershed Laboratory (VWL) that will allow hydrologists, planners, and decision-makers to construct model watersheds and experiment on them. The VWL will be a modular "plug and play" computational environment that supports detailed simulations of

regional water cycles and the impacts (including social impacts) of interventions in the cycle. We intend to avoid ad hoc parameterizations and model simplifications within modules of the VWL by representing interdomain exchanges of mass and energy at fine scales with physics-based models of nonlinear interdomain couplings and then upscaling systematically through averaging techniques and sensitivity analysis. The advent of high-resolution simulations based on high-performance computers and physics-based models will allow us to do something that was previously impossible: bring the "hypothesize and test" paradigm of classical experimental science to the analysis of large complex systems.

Our specific objectives are to

- develop the VWL using modern object-oriented software design techniques;
- implement the VWL on parallel hierarchical memory architectures;
- predict the effects of climate variability and land-use changes on land surface and subsurface hydrological processes as they are modified by variations in soil type, vegetation cover, topography, and season;
- quantify uncertainty based on heterogeneity, sparse sampling, and model reduction;
- develop methods for evaluating the results of simulations;
- explore models of computation based on message-passing between loosely coupled threads of control; and
- develop methods for maintaining large databases accessed by space, time, and attributes.

topography, scaling relationships for water cycle processes and parameters, and the effects of external forcing on regional hydrology. With our partners in the NSF Science and Technology Center, Los Alamos is using its capabilities in high-performance computing to address a problem of major societal importance.

For more information about the water resources project contact:

- Larry Winter, CIC-3: Computer Research & Applications, winter@lanl.gov, (505) 665-6607,
- Everett Springer, EES-15: Environmental Science, everetts@lanl.gov, (505) 667-0569, or
- Jim Bossert, EES-8: Atmospheric & Climate Science, bossert@lanl.gov, (505) 667-6268.

Application

There are three uses for coupled numerical simulations of the water resources within a specific basin. They are in order of reliability:

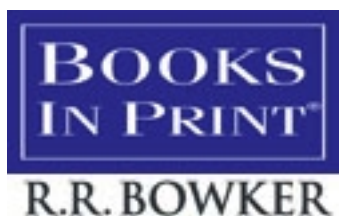
1. classical experimental science;
2. evaluation of "what-if" scenarios, for instance, "What if the population of Albuquerque, NM, doubles?" and
3. prediction of the future.

Los Alamos is developing a coupled model of the water cycle of the upper Rio Grande Basin to address these issues. The model will enhance predictability of regional water resources by understanding the role of spatial heterogeneity in land use and



Books in Print on the Web

by Marie Harper, Research Library, CIC-14



Remember using the printed volumes of Books in Print (BiP)? After the print came the searchable stand-alone CD, then the networked version — but useable only for the people who were in the library. Along came Amazon, Barnes & Noble, and a whole host of other Web-based online

book ordering services, and BiP seems to have gotten lost along the way. Finally, the R.R. Bowker Company, the publisher of Books in Print, has developed a Web BiP: <http://www.bowker.com/bip/>.

Why use Books in Print when the other services exist? Each has its own niche. Books in Print allows for more sophisticated searching, using Boolean operators to combine any number of terms from the author, title, publisher, or date of publication. In the Web version of Books in Print, you can track down particular volumes of a book

series, even if you don't know the title or author's name for that particular piece. Publisher information is fully available, too: address, phone and fax numbers, and often URL and e-mail addresses. If you need help searching BiP, the Research Library will be happy to help you at 667-5809.

Report Library's Classified Database

by Jack Carter, Report Library, CIC-14

The Report Library now has a classified database on which Laboratory staff members can search for information themselves. Currently the database consists of 56,000 records for classified reports from across the DOE complex and going back in time to 1943. The records cover reports from Lawrence Livermore, Sandia, Rocky Flats, Y-12, Mound, as well as other DOE Laboratories and some DoD facilities. Unclassified reports with access restrictions are included as well. New records are added daily as

Research Library staff continue to catalog older and newer reports that are not in the database.

The strengths of the database are in information covering U.S. nuclear weapons, testing, material science, and theoretical physics related to nuclear weapons, proliferation issues, and other topics. Material indexed includes technical reports, conferences, journals, AV, computer media, and patents.

The database features searching by title, author, institution, journal, subject, abstract, report number, publication year, and security codes.

Subject indexing includes terms from several thesauri, DOE subject category codes, and Office of Scientific & Technical Information distribution codes.

Database Requirements: Q-Clearance & Sigmas 1-13.

Database Hours: 8 a.m.—4 p.m.
Monday through Friday

Location: TA-3, SM 207, The Research Library's Report Library Vault

Questions? Contact Report Library staff at 667-4446.

SciSearch® at LANL/Social SciSearch® at LANL Releases New Version

by Jeane Strub, Research Library, CIC-14

Version 4.0 of SciSearch® at LANL/ Social SciSearch® at LANL was released on January 28, 2000. The cited search feature has been extensively revised. The cited screen has been redesigned and the screen has been divided into browse and search sections.

Second and later authors can be browsed for their cited references provided the record exists in the SciSearch or Social SciSearch database. The primary author is indicated on the alphabetical browse list by an asterisk. When there is no asterisk, the first author will appear in brackets at the end of the line.

Cited items with corporate authors can be browsed by their abbreviations. Anonymous papers are browsed by

their source abbreviations. Cited patents can be searched directly by patent number and citations with long author names have been standardized. Help for cited searching has been rewritten to provide assistance in using these new features.

The Web site for SciSearch is <http://scisearch2.lanl.gov/lanl/sciquery.html> and Social SciSearch is on the Web at <http://scisearch2.lanl.gov:8082/lanl/ssciquery.html>.

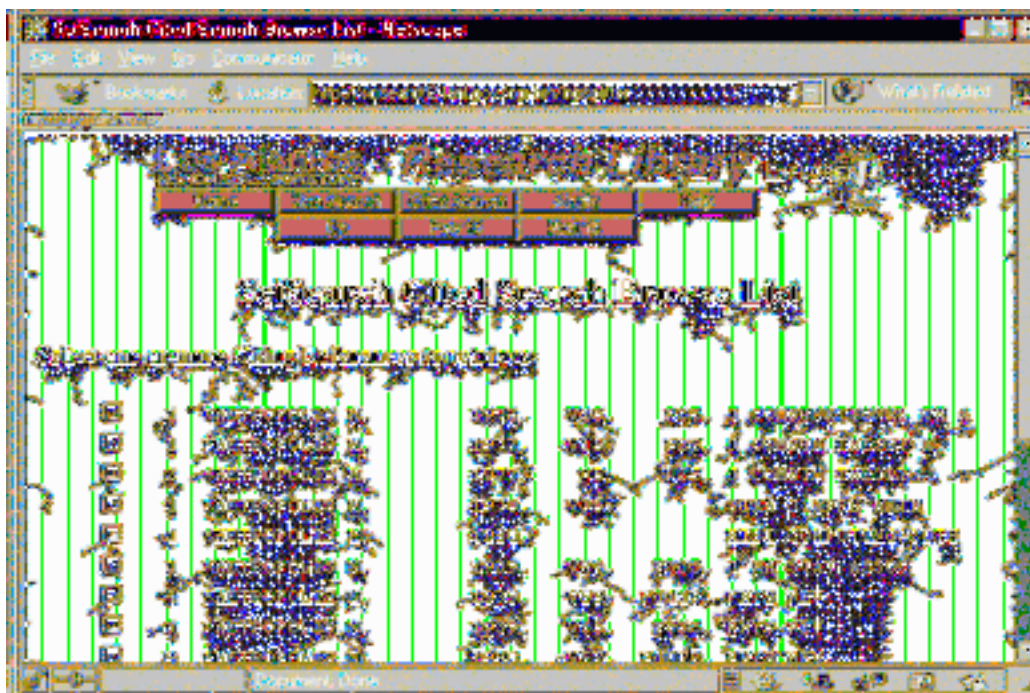


Fig 1. SciSearch Cited Search Browse List

SMS or Windows 2000 for Desktop Management?

by Mark Wingard, REDI SMS Team,
Desktop Group (CIC-2)

With the advent of Windows 2000, many system administrators around the Laboratory are asking whether Microsoft's Systems Management Server (SMS) will still be of any value. Because SMS is being actively used by several Laboratory Divisions including Johnson Controls Northern New Mexico, Human Resources, Applied Physics, and Business, as well as by several other groups, it is a question worth addressing. From a cursory point of view, it would appear that Microsoft borrowed the best features from SMS and built them into Windows 2000. However, as we shall see, the desktop management features of Windows 2000 have aptly been called "SMS Lite."

Windows 2000 IntelliMirror

Windows 2000 can boast some great new management features under the heading of IntelliMirror. With IntelliMirror technology, administrators can apply policies in the area of user data, desktop settings, and software distribution. These policies follow users as they log on to different computers on the network, allowing them to consistently experience the same desktop, data, and applications no matter when or where they log on. This is accomplished in the area of data management through the use of Group Policy, Offline Folders, and Synchronization Manager. Group Policies and Roaming User Profiles also allow administrators to

centrally define computing environment settings on the network to manage users' desktop settings. And, similar to SMS, IntelliMirror enables software installation, repair, update, and removal across the network.

SMS—"The Best Change and Configuration Management Tool for Windows"

The quote is from the Microsoft SMS Web site (<http://www.microsoft.com/smsmgmt/default.asp>).

In addition to the ability to install software applications, Windows 2000 provides for enhanced remote installation of Windows 2000 itself via the Remote Installation Service. Borrowing another strong SMS feature, Windows 2000 administrators have the ability to perform remote control of isolated servers and user desktops through the built-in Terminal Services. All in all, Windows 2000 sports a pretty impressive array of desktop management features that seem to duplicate what SMS has to offer.

While it's true that Windows 2000 has many attractive desktop management features, SMS is designed exclusively for systems management. And while Windows 2000 is excellent at managing user data and desktop settings, in the area of software distribution, hardware and software inventory, and remote troubleshooting, SMS is clearly superior.

Software Distribution Advantages of SMS 2.0

Windows 2000 allows administrators to distribute software in two ways, by *publishing* and *assigning*. *Publishing* means that software installations are optional for users and appear in the Add/Remove Programs Control Panel. SMS 2.0 offers a similar, optional software installation feature through the Advertised Programs Manager Control Panel.

Assigning in Windows 2000 means that software installations are mandatory and will run the next time the user logs on. SMS 2.0 also assigns mandatory software installations but with SMS, these installations can be scheduled to run any time, night or day, whether or not a user is even logged on. This can be a tremendous advantage to administrators to have software installed in the evenings when users are away from their computers, which can both prevent user interference with the installation and eliminate user downtime while the install is taking place.

SMS 2.0 also allows much greater flexibility in targeting applications to

users or computers. Windows 2000 uses an “all-or-nothing” approach to distribute software to all users in a domain, a site, or an organizational unit (OU), however, SMS 2.0 bases software distribution on administrator-defined Collections. Collections can include a single user, multiple users or computers, regardless of whether they are OU members, so software distributions can be targeted with extreme granularity. (SMS 2.0 also provides scripting tools to create scripts to translate Active Directory OUs to SMS 2.0 Collections.)

Collections are rules-based which means their membership can dynamically change if group membership changes or the users’ computer capacity changes. Collections can also be based on queries of software or hardware inventories. In spite of a rich set of objects that can be stored in Active Directory, hardware and software inventory is not a feature of Windows 2000, but it is one of the core features of SMS.

Windows Installer Versus SMS Installer

Windows 2000 software distribution includes the ability to employ just-in-time software distribution, and to perform automatic rollback and repair of damaged applications. However, those abilities are actually features of the Windows Installer, not Windows 2000. SMS is just as capable of deploying Windows Installer repackaged applications as Windows 2000 is but with even greater flexibility. SMS 2.0 goes further through the exclusive availability of the SMS Installer to allow a wide range of enhancements in repackaging application installs, such as additional registry changes, control over dialog boxes, software settings, icon placement, and much more. Microsoft will soon be making available a tool called the Installer Step-up Utility

to convert existing SMS Installer executables to Windows Installer files, so SMS administrators will have the best of both worlds.

Software Distribution Reporting

SMS 2.0 has built-in status reporting for a number of its features. Among these is Advertisement Status Reporting, that is, reporting on the success or failure of software distributions. Status reporting for software distribution in Windows 2000 is completely absent.

Heterogeneous Environments

SMS 2.0 supports many flavors of Windows, from Windows 3.1x, to Windows 9.x, NT, and Windows 2000. SMS also supports Novell Netware. Windows 2000’s desktop management features are only available in an all-Windows 2000 environment. In spite of Microsoft’s desire to the contrary, it may be a long time before an all-Windows 2000 environment is achieved at the Laboratory or in many other enterprises.

Other Exclusive SMS Features

There are a host of other systems management features included in SMS 2.0 but not found in Windows 2000. These features are listed below.

- **WAN Support**—SMS 2.0 has the ability to throttle communications and software distributions over slow links in a variety of ways. There’s also the Courier Sender feature enabling software distribution via CD-ROM or other media to remote sites when network connectivity is either unreliable or nonexistent.
- **Asset Management**—as mentioned earlier, software and hardware inventory can often be the cornerstone of proactive software distribution. Hardware and software

inventories allow administrators to determine whether a given desktop machine meets the prerequisites for software upgrades. Manual hardware and software inventorying can be incredibly time-consuming, but SMS 2.0 performs this valuable service in the background and makes the information available to an administrator without time-consuming visits to every desktop.

- **Software Metering**—while perhaps a bit underpowered, software metering by SMS is still a great tool for recording what software is in use on the network, and enforcing licensing restrictions if necessary.
- **Server Health Monitoring—SMS 2.0’s HealthMon** can provide critical performance information on processes on Windows NT and 2000 Server and various Microsoft BackOffice products such as SQL Server, Exchange Server, and Internet Information Server.
- **Network Topology Tracing Tool**—this feature provides a graphical display of the network routes between servers within an SMS site, including the activity and status of infrastructure devices such as routers and hubs. Network Tracing allows for quick analysis of the potential success or failure of an action such as software distribution to a remote location.
- **The full version of Network Monitor**—while Windows 2000 Server includes Network Monitor, it will only monitor traffic on the segment where the Windows 2000 Server resides. It also only includes drivers to monitor other Windows 2000 systems. To use Network Monitor to view traffic on the entire network, as well as to monitor both Windows 2000 and other versions of Windows, administrators will need the version that comes with SMS 2.0.
- **Integration with other network management tools**—the systems

management capabilities of SMS 2.0 are compatible with other network management tools such as CA's Unicenter TNG, HP's OpenView ManageX, NetIQ's AppManager Suite, Network Associates' Magic Total Service Desk, and Tivoli's enterprise management solutions.

- **Remote troubleshooting**—while Windows 2000 sports Terminal Services, which can allow remote control of other Windows 2000 computers after both the client and server sides are enabled, SMS 2.0 offers the same capability on all the clients SMS supports, not merely Windows 2000. The remote tools included with SMS also offer administrators the ability to perform various other remote diagnostics and troubleshooting in addition to remote control. SMS provides a greater variety of access levels and security configurations than is available through Windows 2000 Terminal Services. The SMS Remote Control feature also has encryption capabilities superior to Terminal

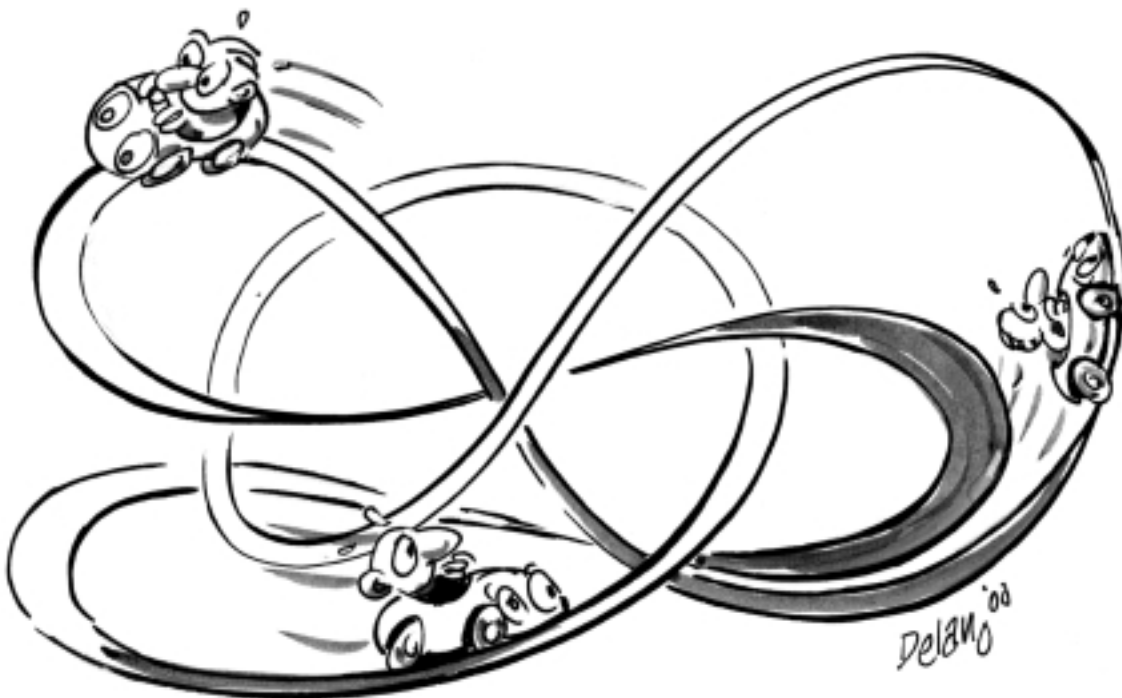
Services, so sensitive user data cannot be captured as it crosses the network.

The Future of Systems Management Server

Systems Management Server is a complex and powerful tool, well suited to the diverse computing environments of large organizations such as the Laboratory. In many ways, the desktop management features of Windows 2000 have been designed to provide SMS-like capabilities for environments where SMS might not be appropriate, such as small subnets of 40 users or less. Officially, Microsoft says SMS extends the Windows 2000 systems management features and most corporate enterprises will need to use both Windows 2000 and SMS to adequately meet their desktop management needs.

For a number of reasons, it may take a few years before Windows 2000 has

completely taken over the desktops of the corporate world. Until that time comes, there is no real rival to SMS for the systems management features it supports. By the time Windows 2000 does become ubiquitous on the desktop, SMS will have evolved to fully leverage and integrate Windows 2000 and Active Directory. In the meantime, SMS can provide desktop management for all current Windows PCs, which is the vast majority of desktops in use at the Laboratory. Many Lab organizations have been successfully using SMS for the last two to three years to lower total cost of ownership and to speed the deployment of software and security patches. For more information on using SMS as a desktop management tool in your Lab group or Division, contact the CIC-2 REDI SMS team at redi4sms@lanl.gov.



Windows 2000: How Well Can the Lab Use This Tool?

by Sue King, Information
Architecture Project Writer-Editor,
with Mark Wingard, REDI SMS
Team, Desktop Group (CIC-2)



Opportunities and choices are rapidly increasing in the world of PC networks. Before 1995, Laboratory local area networks (LANs) were limited to a few Novell Netware networks and some AppleTalk networks for Mac users. Most users participated in the network as independent nodes, sharing files and information only through e-mail and the World Wide Web. Then came the current setup, Windows NT, implemented variously on localized domains that cannot easily allow access to any other Laboratory users, partly because, until 1998, Laboratory NT domains were operating without coordination between them. These NT domains proliferated; there are now 85–100 Laboratory NT domains, with at least two servers for each domain. The Laboratory NT network was aptly described by a GartnerGroup consultant as a “hairball.” Although NT MAD (Master Accounts Domain) has fixed some of these issues, other issues still remain (see January 2000 BITS article: “New Tool for System Administrators of LANL NT MAD Accounts: Domain Manager Application” <http://www.lanl.gov/orgs/cic/cic6/bits/archive.html>).

When Microsoft released Windows 2000 in February, everyone frustrated by the existing hairball knew that the promise of Windows 2000 lay not in what it could do, but in how effectively it would be implemented at the Laboratory. If it were not planned as an enterprise system, it would have no

advantage over what we have now. Mark Wingard, Desktop Group (CIC-2), volunteered to lead the effort. He heads the Information Architecture (IA) Windows 2000 Infrastructure working group, joined by Cheryl Host and Alex Kent of Network Engineering (CIC-5) and 11 other team members representing 11 groups across eight divisions.

Although known for his sense of humor, Wingard is totally serious when he talks about Windows 2000. When asked why did he volunteer to lead such a complex (and fairly thankless) undertaking? He replied: “It all started with Master Accounts Domain (MAD). Alex Kent (CIC-5) and I worked together on the Infrastructure subteam for Microsoft networking, and he and I went to Oakridge (National Laboratory) and got a bunch of ideas. We then wrote the white paper on MAD (Information Architecture White Paper, IA-8701: Choices for Microsoft Networking at Los Alamos National Laboratory <http://www.lanl.gov/cgi-bin/projects/ia/linkto.pl>). When it came time to implement MAD, Cheryl Host headed up the team, with funding from CIC-5 and CIC-2. We worked on that together, and we knew Windows 2000 was going to be the next major step—that it would further MAD. So I said I

would lead the Windows 2000 infrastructure team, but I am still working on the MAD project. Cheryl became a member of the Windows 2000 Infrastructure team, too.”

The first act of the working group was to issue, on February 10, the *IA Advisory: Recommendation for Server Deployment of Windows 2000 for the Laboratory* <http://int.lanl.gov/projects/ia/news-p/news20000210a.html>. The document explains why the team was requesting all to “refrain from installing Windows 2000 Servers as Active Directory Domain Controllers until an enterprise Active Directory network is established. For early evaluation, Windows 2000 servers can be installed as member servers within existing NT 4.0 domains. System Administrators can still have Windows 2000 servers but not using Active Directory.” And that is a mild statement in comparison to say, MIT, where installation of domain controllers is now forbidden.

The working group’s efforts have a formal purpose and goals. The purpose is “to design an implementation of Windows 2000 server and Active Directory for the Laboratory yellow (protected) network.” This means that all yellow network users will be part of the same logical organization within the Active Directory. The team’s goals are as follows:

- Facilitate Laboratory-wide PC resource sharing
- Minimize administrative overhead
- Improve cyber security
- Provide for distributed system administration

The vision is that the Laboratory's 10,000 to 12,000 PC users (70%–75% of Laboratory computer users) will have an efficient enterprise networking environment that has never existed before. All users will be able to log on from anywhere in the Laboratory and have access to network resources no matter where they reside.

The group sees clear advantages to the Laboratory with a successful Windows 2000 implementation. First, the institution could set immediate and unalterable security and usage policies for these computer users. Wingard gave an example: "The DOE 'security banner' implementation is now spotty. Some users installed it for a while and then removed it. Administrators had to touch many machines to install it. With Windows 2000, a required banner could be implemented in a matter of minutes and no one could mess with it. Windows 2000 could also reduce administrative costs through remote administration and installation, and by consolidation of servers."

But the keys are planning and making good decisions. Before any of these possibilities become realities, choices must be made based on the priorities of the institution. Decision areas are as follows:

- Domain structure—How many Active Directory domains are necessary for the yellow network?
- Domain Name System (DNS)—Should Active Directory use Microsoft DNS servers, the existing UNIX BIND servers, or both? What should the Active Directory DNS namespace be called?
- Naming standards—Is the present IA Naming Standard sufficient? Should server names and printers be included for a single domain?

- Organization Unit (OU) structure—What should the OU hierarchy be?
- Group policies—What group policies should be enterprise wide and how should authority be delegated?
- Authentication—Cryptocards? Kerberos? A single logon for all Laboratory resources?
- Application issues—Are there existing network applications that have NetBIOS naming dependencies



or NT 4.0 authentication requirements?

- Deployment plan—Upgrade the existing MAD to Windows 2000 or create a separate Windows-2000-only Active Directory forest?

All of the decision areas involve complex choices with far-reaching implications for how PC networking will be conducted at the Laboratory in the future. To take the issue of Organizational Units (OUs) as one example, Wingard said, "This is not an easy choice. Organizational Units are administrative entities or collections of users and computers that can be arbitrarily created; right now users and computers are administered via NT 4.0

domains. We are leaning towards having a single domain for the yellow network. In order to allow existing administrative capabilities for local system administrators, we will have to create OUs." The OU structure could logically be based on any of the following:

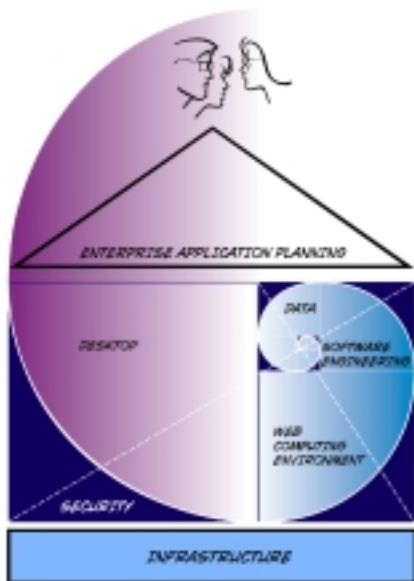
- Political organizations (by divisions, groups, or program offices?)
- Geographical locations (by building or TA?)
- Support organizations (i.e., by who provides the computer support; for instance, some groups have their own support, but many users have no domain and/or no support)
- Existing NT 4 domains (as these are already areas of computer support and administration)

The Windows 2000 Infrastructure team has set up a test lab that has an Active Directory forest installed and has already done some testing of DNS. They will formalize the testing process and spell out test plans for various scenarios, such as determining if Windows 2000 can use the Laboratory's existing Kerberos server and whether cryptocards can be used for authentication into Windows 2000.

Other efforts to create tools and provide information for the transition to Windows 2000 are underway (see box). News of Windows 2000 planning progress will be on the Laboratory Windows 2000 Web sites, and in BITS.

Infrastructure

Information Architecture: Revitalizing This Old House



by Sue King, Information Architecture (IA) Project Writer-Editor, with Diane Weir, IA Project Leader

It seems ancient history now, but when the Laboratory Information Architecture (IA) project began in 1993, one of the overarching problems facing the Laboratory in the electronic information arena was how to share e-mail attachments. IA took this on, did product testing, and established e-mail standards that would work on PCs, Macs, and Unix platforms. IA has come a long way since then, with implementation of a suite of standard desktop applications that work across all three platforms. The desktop standards are now part of the Laboratory culture. The annual IA customer survey shows that these standards are voluntarily complied with by about 85% of the Laboratory. Much has been done since: the IA Security team contributed to the new Laboratory

unclassified green (open)/yellow (protected) computing network design, the Web team kept the Laboratory aligned with World Wide Web consortium standards (standard HTML, Web Content Accessibility Guidelines), and IA led the Laboratory Year 2000 readiness effort.

Then, in January 2000, with the Millennium bug laid to rest, Diane Weir, IA project leader, began to seek new directions for IA. She wanted to focus on problems of greatest concern; problems whose solutions would increase productivity and use information technology (IT) to best advantage for the Laboratory.

The IA revitalization process began in February "on the street," with IA Review team members interviewing

more than 300 Laboratory employees involved in all aspects of IT; as individuals and in groups and teams. Interviewees were asked about their IT barriers, priorities, opportunities, and current focus. The 506 comments collected were powerful and insightful; a few samples follow*:

The responses were collected and sorted and became the revitalization "wish list." But it was a wish list that needed much paring. That was the task of those attending the two-day IA workshop, held February 23-24. The participants decided on four new focus areas: software engineering practices, data architecture, enterprise applications planning, and the Web computing environment. These new initiatives are in addition to the ongoing work of existing IA teams (Security, Infrastructure, Web, and Desktop).

—People don't know what data is out there or what they have. Data is now owned by groups/applications. If data was removed from applications, then it would become Lab-wide data.

—There are pockets of excellence, but we don't leverage these. The [Laboratory] culture prohibits two things: looking to see who else has done it and sharing what's been done. We need better leverage of the good work we've done.

—LANL's Web presence is a patchwork of Webmasters. There is no "champion" for LANL's Web presence.

—We need to be sure that when we spend millions on software, it better work.

—Need one place to go and make the box [desktop] secure. [We] want to be able to plug in box. [We] need automated tools that everyone can use to meet Lab security requirements.

New Areas

Software Engineering Architecture

For the first time in its history, the Laboratory is becoming a production facility. This transition increases the regulatory requirements for the facilities, programs, and IT systems that support those facilities and programs. This effort will require that software engineering practices follow industry standards such as ISO 9000. Many Laboratory groups find that DOE regulations directly impact the software development and IT deployment practices. As a result, software engineering is becoming a requirement in many organizations. IA will assist IT professionals through guidance, templates, training, and tools that support the best software engineering practices.

Lead: Maysa Peterson, Scientific Software Engineering, CIC-12

Data Architecture

The IA will apply architecture principles to a subset of enterprise information to solve some immediate data architecture issues. The team will identify and solve a problem by developing a pilot that delivers a consistent method for sharing data across the Laboratory. The pilot will demonstrate the benefits of an architectural approach.

Lead: Bob Stuewe, Quality Improvement Office

Enterprise Applications Planning

As a resource for the CIO Council, IA will help develop the technical aspects of an Enterprise IT plan for the Laboratory. They will review current and past system characteristics: what have been the successes and failures and identify lessons learned. The results of the study will be the foundation of an IT plan.

Lead: Dave Martin, Engineering Sciences & Applications, ESA-FM-ESH

Web Computing Environment

The ongoing IA Web team has worked with Web designers and content providers for years and was one of the first groups at the Laboratory to conduct its business electronically (on the Web and via e-mail). The Web is becoming the preferred user interface. The benefits are tremendous: the user's choice of desktop is no longer an issue because the Web interfaces are much more standardized. The flexibility of the user interface presents database and application challenges when the requirements exceed a simple page display. Maintaining state, security, authentication, and authorization information are also challenges. Dynamic display of database information becomes nontrivial. Most of the information is "on the Web," yet finding that information remains a challenge, especially for the infrequent user of that information. It has also grown incredibly: the Laboratory alone has more than a million Web pages. These and other Web computing issues are areas where IA will adopt and share best practices.

Lead: Tad Lane, Communication Arts & Services, CIC-1

Ongoing Areas

Security

The IA Security team is led by Ron Wilkins, Network Engineering (CIC-5). One of the primary causes of increased vulnerabilities throughout the DOE complex has been the growth in the use of the Internet to conduct business. The implementation of the green (open)/yellow (protected) unclassified network, developed by the IA Security team, and others, has helped, but more is left to do. IA is working with the ISecM program and the CIO Council to assist in creating standards and policies that enhance security implementations at the Laboratory.

Infrastructure

The IA Infrastructure team, investigates how the Laboratory manages computer accounts, users, and resources, to determine best practices for effective system management. Some success has been achieved already, for example, the NT Master Accounts Domain migration is almost complete. With the introduction of Windows 2000 Active Directory, the design to maximize resource sharing across the enterprise must be repeated. Two product implementations in less than two years [NT followed closely by Windows 2000 (see articles on Windows 2000 in this issue)] illustrate the constant change in infrastructure capabilities and demands. IA works to ensure that these implementations are done correctly. With strong planning, these implementations boost productivity and provide a uniform system management model.

Desktop Standards

The suites of software and hardware recommended for Mac, PC, and Unix platforms have been established and are kept current by the Desktop Standards Team, which is led by Bob Teller, Business Information Systems (CIC-13). A subcommittee is now studying the desktop requirements of Windows 2000 on both hardware and software. The team is also coordinating an Office 2000 pilot with BUS division. The Linux subcommittee is working to provide RedHat preconfigured for Lab users and addressing other Linux/Unix issues.

If you would like to participate in these IA efforts, please send an e-mail to ia@lanl.gov. For more information about the IA Project see their Web site: <http://www.lanl.gov/projects/ia/>.

*Interviewee responses are available (Lab-only) at <http://int.lanl.gov/projects/ia/area/review/revit/welcome.html>

The CIO Council—An Institutional Resource

by Denise Sessions, BITS Managing Editor, with Bob Newell, Chair, CIO Council

You may already be familiar with one Laboratory planning service—the Information Architecture (IA) Project—that has established a process to better guide information systems toward more effective communication. Another more recent Laboratory-wide initiative—the Chief Information Officer (CIO) Council—led by CIC Deputy Division Director for Information Management, Bob Newell—was begun in 1999 to establish and make recommendations about information management policies to the senior executive team (SET). With the support of Deputy Laboratory Director for Business Administration and Outreach, Joe Salgado, the Council will be developing policies to better manage information at the Laboratory.

Why Information Management?

The flow of data/information within an organization is complex because the same data is viewed differently as it moves from one division to the other. The complexity of this information reflects the complexity of business transactions. This information must be analyzed and understood before effective computer solutions can be developed.

Information management (IM) is the discipline that analyzes information as an organizational resource. Within an organization, IM covers the definitions, uses, value, and distribution of all data and information whether processed by computer or not. It evaluates the kinds of data/information an organization requires to function and progress effectively.

Information Management Policymaking

At LANL, the ad hoc CIO Council is comprised of IM professionals from all around the Laboratory. (See the sidebar on CIO Council Members.) These council members, who have all volunteered to participate, share a common belief in the need for IM policy, IM planning, and to establish a common forum for discussing IM issues that have institutional impact.

As a result of their efforts over the past year, the CIO Council members have offered the Laboratory their service as an institutional resource. Official direction for the Council came from

Joseph Salgado who identified the institutional need to have enterprise systems evaluated before purchase and then assigned the Council to evaluate a system under consideration for purchase. Also, the Council has drafted IM policy to be approved by the Laboratory's SET.

Some of the tasks the CIO Council is currently working on are an enterprise system evaluation for new, major purchases and for development projects. The Council reviews the status and progress of the projects as frequently as it deems appropriate for the nature and the milestones of the project.

CIO Council Members

Computing, Information, and Communications Division—Diane Weir, Gary Rich, Bob Newell (Chair)

Business Operations Division—Scott Larkin

Human Resources Division—Nick Ovalle

Facilities and Waste Operations Division—Patricia Nelson

Environment, Safety, and Health Division—Charlotte Lindsey

Quality Improvement Office—Bob Stuewe

Engineering Sciences and Applications Division—Octavio Vela

Technology and Safety Assessment Division—Sue Watters

Project Management Division—Toby Lovato

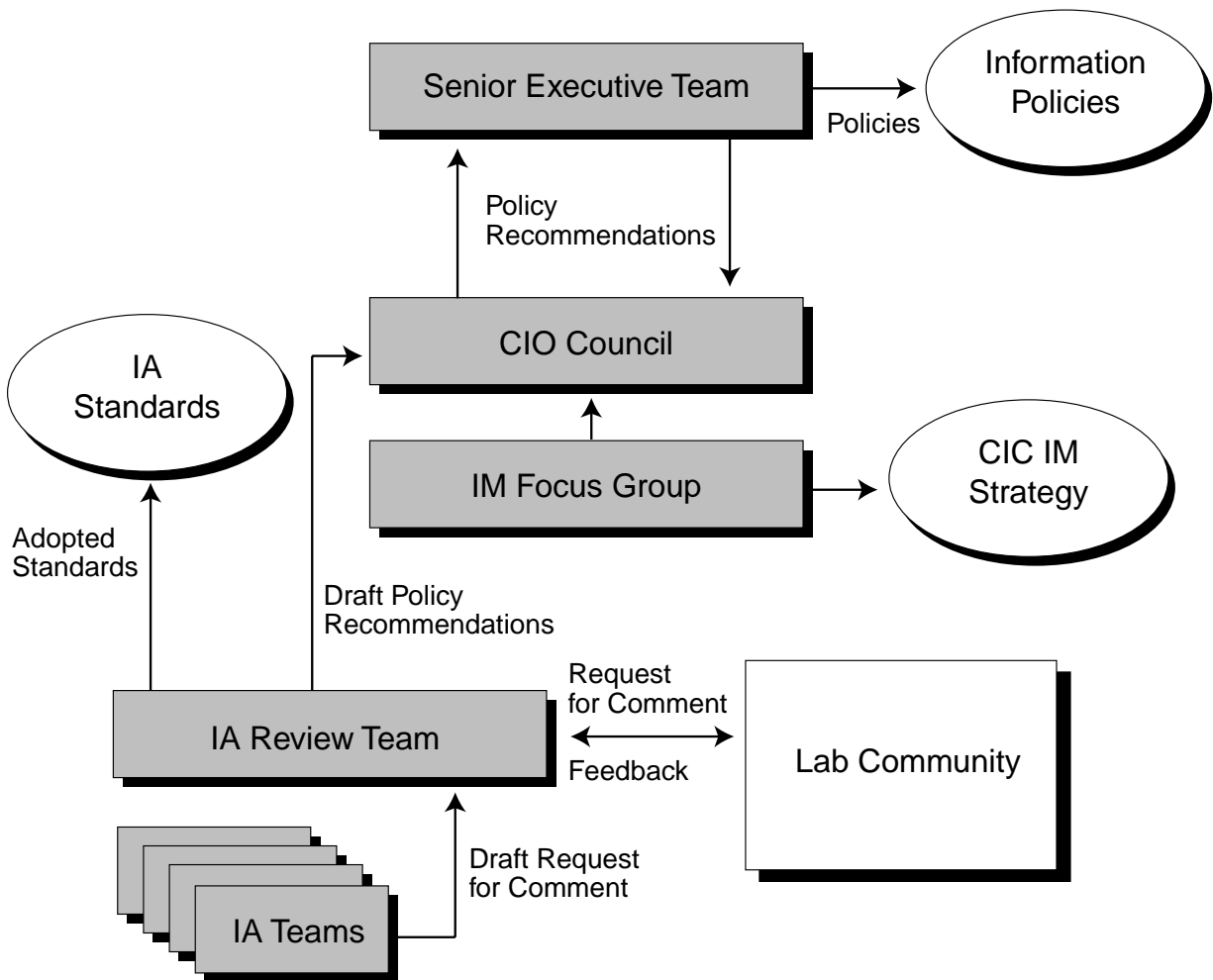
Strategic and Supporting Research Directorate—members needed

Looking Ahead

In the near future, the CIO Council will assist in drafting a long-term institutional management plan. This plan would address the current state of IM at the Laboratory, the desired future state, and the initiatives to move to the desired future state. As a result of establishing a process for review, the Council has provided the entire Laboratory community with the opportunity to be involved in the comment process. In addition, the Council can choose to use the IA request for comment process as a feedback mechanism before making policy recommendations to the SET.

Having established a process for IM policymaking is one of the most important accomplishments of the CIO Council. Prior to the forming of the Council, no formal mechanism existed for establishing IM policies. The figure shows the flow of information from the Laboratory community through the IA Team to the CIO Council. The SET may adopt policies recommended by the CIO Council.

For more information about the CIO Council, contact Bob Newell, CIC Deputy Division Director for Information Management, at bnewell@lanl.gov.



The flowchart shows how information management (IM) issues can flow up from the Lab community or down from the Senior Executive Team (SET) through the Information Architecture (IA) Review Team and the Chief Information Officer (CIO) Council.

Web Design 2000: A Conference for LANL Web Communicators

by Betty Katz and Denise Sessions,
Communication Arts and Services
(CIC-1)

The over 300 participants in the day-long Web design conference sponsored by the LANL Web Core Team, CIC-6 Training, CIC-5 Network Services, and CIC-1 Communication Arts and Services received a generous dose of "Web reality" from the conference's keynote speakers.

Realities of Web Design

Robin Williams, Santa Fe designer and author of *The Non-Designer's Web Book* and *The Mac Is Not a Typewriter*, told the audience that "Web site work is never done." In her keynote address, "Communicating on the Web," she reminded the participants that every element they use in a design communicates a message. "It's not possible to not communicate," she declared.

Continuing this theme of realism, the second keynote speaker, Vincent Flanders, designer and author of *Web Pages that Suck* (the book and the Web site), contended that although planning is not the fun part of Web design, it is the key to balancing good-looking pages with usability. In encouraging the audience to think about what alienates people from a Web site, Flanders noted, "If users have a meaningless experience, why would they in their right minds come back to your site? The lack of planning is the most common mistake in Web design."

Responsibilities of Web Design

These keynote speakers' statements echoed the opening remarks made by Deputy Laboratory Director for Science, Technology, and Programs, Bill Press, who said that developers of



Robin Williams: Communicating on the Web

Web sites must focus on excellence in visual design, usability (see sidebar), security and privacy awareness while balancing design and maintenance costs. Press said he believes that

distribution of information on the Web is very cost effective. He reminded the audience, however, that it is the responsibility of all employees and workers here at LANL to report if they encounter information that should be behind the yellow firewall (www.int.lanl.gov) instead of on the green network (www.lanl.gov).

First Keynote Address: It's Not Possible Not to Communicate

Acting as Master of Ceremonies, Lisa Gardner, a training specialist with Customer Service (CIC-6), said that she received many requests for Web design training from her Web tools training course participants. Gardner introduced Robin Williams as an effective communicator whose goal has been to ensure that people understand the computer, the Web, and their associated tools. Williams began her talk by encouraging designers to take advantage of the medium by using more photos and graphics. She reminded the audience that in Web design, "Everything has a bigger field of communication around it."

Usability: The term usability indicates the effectiveness, efficiency, and satisfaction with which users can achieve tasks in a particular environment of a product. High usability means a system is easy to learn and remember; and that it is efficient, visually pleasing, fun to use; and quick to recover from errors.

Williams used the Internet to illustrate good and poor use of Web tools to create multimedia. She noted that Web designers should keep in mind the power of human perception; or, for example, a moviegoer's capability to know within a minute of watching a movie, what kind of movie it's going to be.

In regard to site architecture, Williams suggested using site maps for large sites and keeping visual images within the frame site. (Don't make users scroll to the right.) She stressed that designers create an element of continuity in their sites to remind users that wherever they go on a site beyond the first page, they're still on the same site.

Tips for the designer included Williams' design ideas based on the axiom, "If it looks hard to read, it is." For example, Williams advised designers to avoid using italics because it hampers readability and to avoid underlining because users might mistake underlined words for an electronic link.

Because most Web graphics are rectangular, Williams advised putting graphics in table cells that act as gridlines. Also, she said that designers may choose to create their initial design in Photoshop or Illustrator and then code the HTML after the design is approved or has met the designer's needs.

Bonus Keynote Address: Planning Is Not the Fun Part

Flanders, who followed up on Williams' advice to designers with a talk in addition to his afternoon keynote address, said Web designers have to worry about the design of the site, its target audience, what kind of technology is available to the user audience, and what user action is desired.



Vincent Flanders: Planning Your Website

Planning a Web site involves developing a communication strategy (defining your goals) and determining visual, content, and navigational objectives. He stressed that the home page is the most important element and also recommended designing a site map. He said to choose tools such as HTML, JAVA, JAVASCRIPT, FLASH, CGI, GIF based on a "need to have" rather than showing off all the tools available. He recommended creating and testing a prototype before you "unleash" your Web site on the world.

Deciding Color and Layout: Reviewing Purpose and Message

Web designers Kathi Parker and Ann Peterson from the Lab's Communications Arts & Services Group (CIC-1) spoke on the design principles of layout, color, and typography, as well as graphics and animation. (To see their slides and recommended Web links, go to <http://www.lanl.gov/resources/>.) When designing

a Web site, they suggested, think about how color and graphics communicate your message. Use multimedia only to enhance your message. They recommended considering users' "eye flow" to design the layout of a site. (See Fig. 1.)



Kathi Parker and Ann Peterson: Color and Layout

Screen size: 640 × 480

Page size: 590 × 480

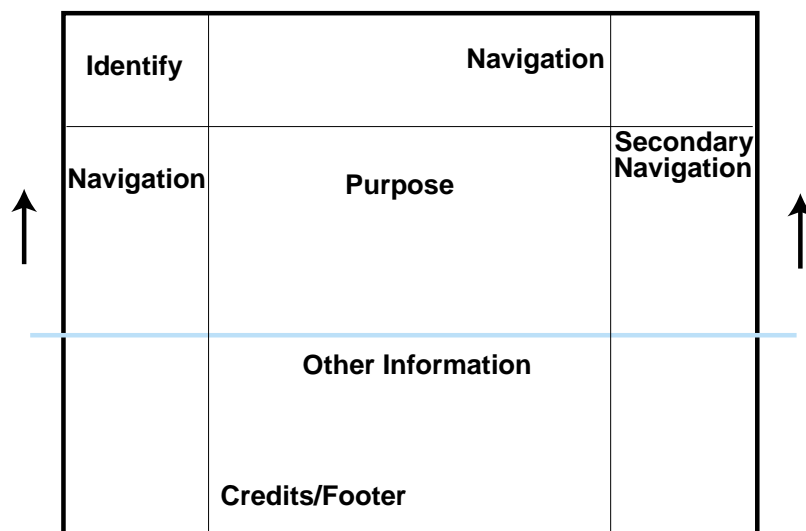


Fig. 1. This figure shows the flow of the eye around a computer screen. The purpose section is the "primary real estate" or place to put the media that most directly communicates the purpose of the Web site.

"brand recognition" as a means to set the Lab apart. Los Alamos Web templates are available for downloading at <http://www.lanl.gov/>.

Second Keynote: Web Pages That Suck

The second keynote address was delivered by Vincent Flanders. His entertaining presentation included a guided tour of his Web site www.webpagesthatsuck.com. On this tour, Flanders pointed out design and usability horrors that erode a site's message, such as unclear or missing navigation elements. Flanders noted that he was disappointed with the latest trend on the Web that he called "under the influence" or the stealing of designs. He recommended that Web designers pay attention to copyright law.

Establishing and Strengthening the Lab's Identity

In their presentation, "Templates from Heaven," Chad Kieffer and Tina Skinner, CIC-1 Web developers, demonstrated the importance of Web site identity. They involved the audience by displaying Web sites and asking the audience to identify the company/organization involved.

These speakers reminded the audience that using consistent templates not only contributes to usability but helps establish relationships among members of the Lab's audiences, such as DOE and the University of California. Consistency on the Web, they said, builds and maintains the Lab's reputation and creates



Master of Ceremonies, Lisa Gardner, and Vincent Flanders: Web Pages That Suck



Tina Skinner and Chad Kieffer: Templates from Heaven

Effectively Conveying Information on the Web

"Usability and the Web" was the focus of the talk presented by Kym Kittell, a user-interface designer with Business Information Systems (CIC-13). She stressed that testing usability is especially important for the Web because Web designers fail if users have not been able to get what they need from a site. Kittell said usability testing could be done very simply by directly observing as few as five visitors to a Web site and testing as few as six tasks. It is not necessary to have special equipment such as two-way mirrors and special testing rooms. She noted that around 80% of the errors in a Web site can be caught in the design phase through simple user testing. Kittell's slides from the conference are located on the Laboratory Web Resources & Information page and have references and links to usability resources, such as Web guru Dr. Jakob Nielsen's Web site (www.useit.com).



Kym Kittell: Usability and the Web

LANL Web Communicators Unite

Directly related to the design issues discussed throughout the conference, the presentation "Functional Standards for the LANL Web," by Chris Lindberg and Katherine Norskog, both from CIC-1, was to communicate the standards they recommend that Laboratory Web designers adopt. These standards will help keep Web sites functional, simple, and accessible. For example, they recommend adopting naming and file structure conventions as functional standards. Their talk included recommendations for images, type, page and file size, and metatags (see sidebar).

Metatags: Information about Information

Metatags include the <title> tag inside <head> tags of an HTML document and any special tag beginning with the word meta. Metatags enable robots to index your pages more effectively, which helps clients and users find your information.

LANL Recommendations:

- Use the <TITLE> tag
- Be specific with your title
- Use long titles to help search engines index your page accurately
- Include the word "home" in the title on your top page so search engines will rank your home page accordingly
- Include Los Alamos National Laboratory at the end of your title
- Use the metatags for keywords and description (don't repeat your title)

Examples

```
<TITLE>Functional Standards for the LANL Web | Web Resources | Los Alamos National Laboratory</TITLE>
```

```
<meta name="keywords" content="keyword1, keyword2, etc.">
```

```
<meta name="description" content="brief description of this page">
```

Also, they reiterated the importance of using alternate font tags, such as `` rather than ``. See their specific recommendations on the Web site <http://www.lanl.gov/resources> .)

Great Job

The Design 2000 sponsors wish to thank everyone who worked behind the scenes to make this conference a reality. Special kudos go to Susan Simonsic (CIC-6), Leslie Morgeson (CIC-15), the CIC-6 Training Team, and Ann Peterson (CIC-1) for the design of conference advertising materials.



Chris Lindberg and Katherine Norskog: Functional Standards for the LANL Web



External Committee Reviews CIC Division Progress and Future Directions

by Denise Sessions, BITS
Managing Editor

The CIC Division Review Committee (DRC) met for three days at the end of March in Los Alamos to hear presentations from Laboratory and CIC managers and researchers. The presenters discussed achievements made over the past year and new directions for strategic computing and computer science research.

Computer science research presenters included John Reynders, Chris Luchini, Ron Minnich, Alan Keahey, Adolffy Hoisie, Don Hush, and Cliff Joslyn. Topics included Overview of Computer

Science Research in CIC, POOMA II Computer Science Technology, Extreme Linux, Query-Based Visualization, Architecture and Performance Research, Machine Learning, and Distributed Knowledge Systems.

Presenters on strategic computing topics included John Morrison, Bob Ayars, Gary Grider, Jeff Brown, Chris Kemper, and Gary Clark. Topics included Update on Accelerated Strategic Computing Initiative (ASCI), Progress on the Stability and Scalability of ASCI Blue Mountain, Scalable Global Parallel File Systems, Collaborative Path-Forward Effort, Security Technology Developments, and Software Engineering Accomplishments.

The DRC toured CIC facilities including the construction sites for the Strategic Computing Complex and the Communications Office Building.

On the last day of the meeting, the DRC prepared a summary report of their review and delivered an executive out-brief to the Laboratory Director, John Browne, and CIC leaders Charlie Slocomb, John Morrison, and Bob Newell. A final written report will be given to the Laboratory Director within a 30- to 60-day timeframe.

CIC Division Review Committee Membership

Name	Affiliation	Expertise
David M. Cooper (Invited 1998)	Associate Director, Computation Directorate, Lawrence Livermore National Laboratory	System software, advanced algorithm development
Stuart Feldman (Invited 1994)	Director, IBM Center for Advanced Commerce	Software architectures/configuration (Invited 1998) management, Internet services and applications management, software support of advanced networks
Michael Harrison (Invited 1994)	Professor, Computing Science Department, University of California/Berkeley	Multimedia systems, software environments, computer security, theoretical computer science
Kim Molvig (Invited 2000)	Associate Professor, Nuclear Engineering, Massachusetts of Technology	Nuclear physics, extensive theoretical research and publication on controlled thermonuclear fusion
Cherri Pancake (Invited 1996)	Professor of Computer Science and Intel Faculty Fellow Oregon State University	Computer engineering, software Committee Chair support for high-performance computing
Paul R. Woodward (Invited 1998)	Professor of Astronomy and Fellow University of Minnesota, Director,	Difference methods, scientific of the Supercomputer Institute, visualization, grand challenge computation, theoretical astrophysics, and illustrative Web documents Laboratory for Computational Science and Engineering
Katherine Yelick** (Invited 1998)	Associate Professor Computer Science Department UC/Berkeley	Parallel computing, programming languages and compilers, and symbolic computation

*For more biographical details, see the BITS article "CIC Division Undergoes Review in March" in the Feb/March 2000 issue, or go to http://www.lanl.gov/orgs/cic/cic6/bits/feb_march_bits00/feb_march00_opener.html.

**Unable to attend March 2000 DRC meeting

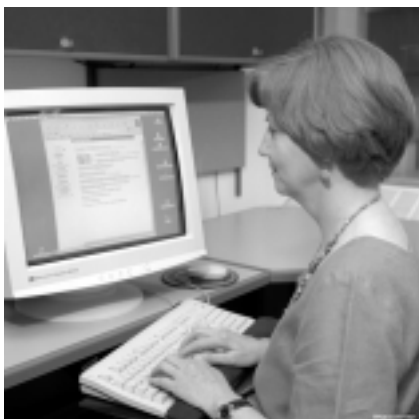
New Options for Getting Work-Related Training

by Denise Sessions, BITS Managing Editor, with Markus Mueller, CIC Designated Training Generalist

Is it inconvenient or virtually impossible to get the online or video training you need? Maybe you need a space to complete computer-, audio-, or video-based training that is free from telephone, e-mail, and visitor distractions.

To give you more options for getting the training you need for compliance or professional development, CIC-6 Training has opened the CIC Training Resource Center. Located in an area accessible by L- or Q-cleared personnel from any Laboratory division or program, you can find the Resource Center at TA-3, SM-200 (upstairs from Advanced Computing Laboratory West) in Room 251. Uncleared individuals may use the resource after making the necessary escort paperwork and arrangements.

The Resource Center—open Monday through Friday—is always staffed by CIC Resource Center personnel. Walk-ins are welcome, but the Resource Center personnel encourage you to call or stop by to make an appointment. To schedule an appointment, contact Markus Mueller, the CIC Designated Training Generalist (DTG), at 667-6965, or send e-mail to mueller@lanl.gov.



Susan Simonsic, CIC-6

According to Mueller, there are personnel assigned to CIC organizations who are required to complete division-, site-, or job-related training. These personnel may not have access to LANL computer networks where the Web-based training is located. The Resource Center provides a means for these personnel to accomplish compliance training. As the DTG, Mueller is available to give personal and organizational information about training, for example, transcripts, training plan reports, and compliance statistics.



Denise Sessions, CIC-1, and Jeff Johnson, CIC-6

The Resource Center has designated two cubicles equipped for individual or one-on-one training sessions. The equipment includes two PCs, one Macintosh, and two video viewers. The computers include CD-ROM and multimedia training capabilities. Users can print at a shared local printer in the room. The Resource Center has a library with videos and training materials available for checkout. Personnel can accomplish paper-based training, testing, and reading in the Resource Center. Specialized technical training videos (MSCE, C++, etc.) provided by the users can be set up for viewing.

Upon request and arranged in advance, the CIC-6 Training Team may provide one-on-one training for courses that the CIC-6 Training Team normally administers. (See the Computer Training course offerings in the "What's Happening" section of this issue.) For more information about advanced technical training, such as application, programming, system administration, and ASCI training, contact Leslie Linke at (505) 667-9399.

Because the Resource Center is in a secure area, classified video training can be done. The computers are connected to the open, protected (informally yellow) computing network therefore making classified computer training not an option.

Examples of compliance training available through the LANL Web include Annual Security Refresher, Substance Abuse Awareness, and Technical Surveillance Countermeasures.

For more information, telephone Mueller at (505)667-6965 or send e-mail to mueller@lanl.gov, or telephone Beverly Faulkner at (505)665-0996 or send e-mail to baf@lanl.gov.





LOS ALAMOS NATIONAL LABORATORY

Research Library

<http://lib-www.lanl.gov>

The LANL Research Library offers a variety of training opportunities for the Laboratory community. Available sessions focus on specialized library databases and other electronic resources. A complete list of course offerings can be found at <http://lib-www.lanl.gov/libinfo/training.htm>. All sessions are available to individuals or groups at the library or your site. Arrange for a session by contacting the Library, phone 7-4175 or e-mail library@lanl.gov. Library tours are available on a drop-in basis every Wednesday at 1:00 p.m.



Listserv for Usability and Online Help

Subscribe to a mailing list for people interested in software documentation and online help. It's a convenient way to refer each other to interesting articles and techniques, and perhaps help each other with specific problems from time to time.

To be added to the list, send an e-mail message to listmanager@lanl.gov with a single line in the body of the message:

subscribe documenters

After subscribing, you will receive a confirmation message that also explains how to unsubscribe.

Computer Training

The Customer Service Group (CIC-6) offers technical computer training (enterprise information applications, communications, office administration, and Web authoring) and advanced computer training (programming languages, system administration, and advanced applications). To register for a course access our Web page at <http://www.lanl.gov/internal/training/training.html>. Or from the LANL home page select the links: Training, Computer. For further information about technical computer training call (505) 667-9559, and for advanced technical computer training call (505) 667-9399.

Technical and Advanced Technical Computer Training Courses		
Communications	Office Skills 2000	Web Authoring and Browsing
<ul style="list-style-type: none">• Eudora 4.2• Meeting Maker 5.5.3	<ul style="list-style-type: none">• Office Skills 2000–LANL Computing• Office Skills 2000–Professional Development	<ul style="list-style-type: none">• Dreamweaver 2.0• FrontPage 2000• HTML
Enterprise Information Applications (EIA)	Other EIA Courses	System Administration Training
<ul style="list-style-type: none">• Date Warehouse–Basics• Date Warehouse–EDS Reports• Data Warehouse–Passport• EDS–Basics• EDS–GUI• EDS–Training Plans• Infomaker• Invoice Approval System• Procurement Desktop• Purchase Card System• Recharge• Time & Effort GUI• Travel Foreign• Travel Domestic GUI• Web JIT	<ul style="list-style-type: none">• Automated Chemical Information System (ACIS)• Directory Information System (DIS)• Financial Management Information System (FMIS)• Key/Core• Property Accounting, Inventory, and Reporting System (PAIRS)• Resource Planning Module (RPM)• Salary Management Tool (SMT)• Secretarial/Contract Service (SE)• Signature Authority System (SAS)	<ul style="list-style-type: none">• IRIX (SGI) System Administration (Beginning)• IRIX (SGI) System Administration (Advanced)• IRIX (SGI) Network Administration• SGI Performance Evaluation and System Tuning• Solaris 7 System Administration I• Solaris 7 Network Administration II• Solaris TCP/IP Network Integration• Unix and Widows NT Integration• Windows NT Optimization and Troubleshooting• Windows NT Windows 2000 Update for IT Professionals• Windows NT Workstation and Server
Programming Training	Application Training	
<ul style="list-style-type: none">• Advanced Perl Programming with CGI• ANSI/ISO C++ Programming Clinic (Advanced C++)• C Programming (Beginning)• C Programming (Advanced)• C++ for Experienced C Programmers• Distributed Objects Using Corba• Distributed Programming with Java• Java Programming• Java Program Workshop• Object-Oriented Analysis and Design• Object Technology–A Management Overview• Perl Programming• Programming for Beginners Using Java• Shell Programming	<ul style="list-style-type: none">• Advanced WWW Development• Apache Web Server• C++ and the Unified Modeling Language• Foundations of IDL Programming• FrameMaker Basic and Advanced• IDL 5.0 Graphic Object Workshop• Netscape Servers for Intranet Development• Origin 2000 Applications Programming and Optimization• Sendmail–Managing Internet Mail• Sybase Fast Track to Adaptive Server Enterprise 11.5 (ASE)• Sybase Performance and Tuning for System 11• Sybase SQL Server Administration• Unix (Beginning)• Unix (Advanced)• Visual Basic 5.0 Fundamentals• Visual C++ Windows Programming	
*You do not need an ICN password to use e-mail.		

What's Happening

Note page . . .



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Do Not Staple
Fold on This Line First



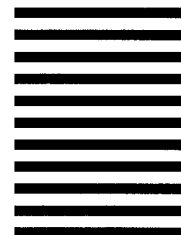
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

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1999 12-Month Index

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TRANSIMS: Look for an article in BITS June/July 2000 about the Transportation Analysis and Simulation System, an extensive software system that simulates human mobility on an urban regional scale. A Laboratory team comprised of Technology and Safety Assessment (TSA) and CIC Divisions was awarded Distinguished Copyright Award at the Laboratory's Patent and Licensing Awards Ceremony on March 1, 2000. The software system was judged to be the copyright with the highest potential for commercial applications, programmatic impact, and potential to enhance the reputation of the University of California and the Laboratory. TRANSIMS' detailed transportation and vehicle emissions simulations can help urban planners and decision makers address how pollution, energy consumption, traffic congestion, land-use planning, traffic safety, and transportation infrastructure affect quality of life, productivity, and the economy. For more information, send e-mail to Ron Smith, Project Coordinator, at rlsmith@lanl.gov, or see the Web site <http://transims.tsasa.lanl.gov/>.

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